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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/517,615	03/03/2000	Shrikar Bhagath	52352-595	5462

20277 7590 10/21/2002

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EXAMINER

PATEL, ISHWARBHAI B

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 10/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/517,615

Applicant(s)

BHAGATH ET AL.

Examiner

Ishwar (I. B.) Patel

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 7-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 March 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-6, drawn to an integrated circuit package board, classified in class 174, subclass 250.
 - II. Claims 7-14, drawn to a method for positioning electronic components on an integrated circuit package, classified in class 438, subclass 107.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions group II and I are related as process of making and product made.

The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as by manually positioning the electronic components on the integrated circuit package board instead of using a programmed machine vision element.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

4. During a telephone conversation between Stephen W. Smoot (previous examiner) and Daniel S Trainor (attorney for applicant) on May 21, 2002, a provisional election was made without traverse to prosecute the invention of Group I, claims 1-6. Affirmation of this election must be made by applicant in replying to this Office action. Claims 7-14, withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubin, US Patent No. 6,044,549, in view of Hidetaka, Japanese Patent JP403162000A.

Regarding claim 1, Kubin discloses Integrated circuit package board comprising:
a package board surface (surface of printed circuit board 32, see figure 4, column 4, line 42-45); and

a plurality of fiducial distributed on the package board surface (fiducial elements 36, see figure 4, line 42-65), but fail to explicitly disclose the fiducial are positioned asymmetrically from a center point of the package board surface and two of the fiducial having different sizes from one another. However, the locations and number of the fiducial will be decided upon the type of alignment required, such as, only two fiducials/guiding holes for aligning a panel board on a drill machine will be enough with respective pin on the drill bed, or two fiducials on the negative of the photos for printing the circuit traces on the board, and it is inherent to provide two or more fiducial asymmetric to the center to stop the panel/board installation in reverse side.

Regarding the size of the fiducial, the applicant is not disclosing any specific advantage with different size fiducial against the same size of fiducials. The fiducials may be same size or different as described on page 4, lines 1-4 of the specification.

Further, Hidetaka disclose fiducials asymmetrical to center of the board. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the circuit board of Kubin with fiducials asymmetrical from a center point of the package board surface in order to have the accurate alignment of the component/board without an error and resultant less failure.

Regarding claim 2, though Kubin does not disclose about the size of the fiducial, it will be decided upon the method of the alignment. If the alignment is with naked eyes, a larger fiducial will be useful in aligning, if it is machine alignment, it will be designed to suit the requirement of the machine. The crux of providing fiducial is to reduce the misalignment or to stop wrong installation of the part. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the modified circuit board of Kubin with sizes as claimed to facilitate better alignment to reduce waste.

Regarding claims 3 and 4, Kubin further discloses fiducial made with high intensity of light reflection or gold plated, see column 3, line 50-60.

Regarding claim 5, Hidetaka discloses a reference fiducial at an intersection of an x-axis and a y-axis, the intersection not being at the center of the package board surface, see Hidetaka figure 2.

Regarding claim 6, though Hidetaka discloses the first fiducial further from the x-axis than the second fiducial from the y-axis, Hidetaka figure 2, it can be provided in the reverse, with first fiducial further from the y-axis than the second fiducial from the x-axis to suit the specific manufacturing situation. One way or the other is not giving any specific advantage or disadvantage over the other. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to

provide the modified circuit board of Kubin with the first fiducial further from the y-axis than the second fiducial from the x-axis in order to suit the specific manufacturing situations for getting better alignment.

Conclusion

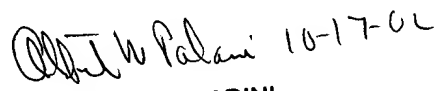
8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Winer et al., Kuribayashi et al., Forehand et al., and Kawato et al., disclose circuit assembly similar to applicant's claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (703) 305 2617. The examiner can normally be reached on M-F (6:30 - 4) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L Talbott can be reached on (703) 305 9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305 3431 for regular communications and (703) 305 7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

ibp
October 16, 2002


ALBERT W. PALADINI
PRIMARY EXAMINER